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19. ABSTRACT (Continue on reverse if necessary and identify by block number) The 1983 International Multigrid Conference was held at Colorado's Copper Mountain Ski Resort, April 5-8. It was organized jointly by the Institute for Computational Studies at Colorado State University, U.S.A., and the Gasellschaft fur Mathematik und Datenverarbeitung Bonn, F.R. Germany, and was sponsored by the Air Force Office of Sponsored Research and National Aeronautics and Space Administration Headquarters. The conference was attended by 80 scientists, divided by institution almost equally into private industry, research laboratories, and academia. Fifteen attendees came from countries other than the U.S.A. In addition to the fruitful discussions, the most significant factor of the conference was of course the lectures. The lecturers include most of the leaders in the field of multigrid research. The program offered a nice integrated blend of theory, numerical studies, basic research, and applications. Some of the new areas of research that have surfaced since the Koln-Porz conference include: the "algebraic multigrid approach; multi-grid treatment of Euler equations for inviscid fluid flow problems; (CONTINUED)			
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ITEM #19, ABSTRACT, CONTINUED: 3-D problems; and the application of MG methods on vector and parallel computers. New results have also been achieved in the following areas: software for standard elliptic problems (finite element and finite differences); bifurcation problems; grid manipulation processes; and comparisons with other techniques. Questionnaires were sent to all participants after the conference, with about a third responding. It is encouraging to note that there was virtually unanimous enthusiasm about the conference, facilities, organization, and environment. There was especially positive response concerning the lecture content and format. It is significant that all those who responded to question 9 concerning another meeting indicated that they would like one held by 1984 or 1985. Attached to this report are the completed questionnaires and a list of the speakers and attendees.

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FINAL REPORT

for

NASA Contract No. NASW-3773

"Conduct of the International Multigrid Conference"

Dr. Stephen McCormick

Principal Investigator

Approved for public release;
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Research Institute of Colorado

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AIR FORCE OFFICE OF SCIENTIFIC RESEARCH (AFSC)

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MATTHEW J. KELLER

Chief, Technical Information Division

The 1983 International Multigrid Conference was held at Colorado's Copper Mountain Ski Resort, April 5-8. It was organized jointly by the Institute for Computational Studies at Colorado State University, U.S.A., and the Gasellschaft fur Mathematik und Datenverarbeitung Bonn, F.R. Germany, and was sponsored by the Air Force Office of Sponsored Research and National Aeronautics and Space Administration Headquarters. The conference was attended by 80 scientists, divided by institution almost equally into private industry, research laboratories, and academia. Fifteen attendees came from countries other than U.S.A.

In addition to the fruitful discussions, the most significant factor of the conference was of course the lectures. The lecturers include most of the leaders in the field of multigrid research. The program offered a nice integrated blend of theory, numerical studies, basic research, and applications. Some of the new areas of research that have surfaced since the Koln-Porz conference include:

the "algebraic" multigrid approach;

multigrid treatment of Euler equations for inviscid fluid flow problems;

3D-Problems; and

the application of MG methods on vector and parallel computers.

New results have also been achieved in the following areas:

software for standard elliptic problems (finite element and finite differences);

bifurcation problems;

grid manipulation processes; and

comparisons with other techniques.

Questionnaires were sent to all participants after the conference, with about a third responding. It is encouraging to note that there was virtually unanimous enthusiasm about the conference, facilities, organization, and environment. There was especially positive response concerning the lecture content and format. It is significant that all those who responded to question 9 concerning another meeting indicated that they would like one held by 1984 or 1985.

Attached to this report are the completed questionnaires and a list of the speakers and attendees.

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RECOR

INTERNATIONAL MULTIGRID CONFERENCE

MAY

1983

APRIL 5-8, 1983

COPPER MOUNTAIN, COLORADO

INSTITUTES

CONFERENCE QUESTIONNAIRE

Please return by May 30

To: Gloria Jean Thomas, Conference Coordinator
Department of Conferences and Institutes
Rockwell Hall
Colorado State University
Fort Collins, Co 80523

1. What do you think about the environment and how it affected the conference?

Very important and very beneficial. I like conferences where I do not need an automobile, where the participants are relatively isolated from the outside world, and where some physical activity is possible.

2. From which lectures or types of lectures did you benefit most?

Brandt's survey lecture (not the paper), Stuben's paper on Algebraic Multigrid, Thamess' paper on mesh generation, and papers by Caughey, Jameson, and Jesperson.

3. Please comment on the planning of the schedule and program (timings, topics, etc.)

I like a tight order of the paper presentations, which corresponds to the published schedule.

There was a problem starting the sessions at 8:00am because the restaurant did not open until 7:30am and service was slow.

4. Please comment on the educational value of the conference. Did you learn anything from attending the conference? If so, what specific areas were important to you?

1. Algebraic Multigrid concepts. 2. Confirmation of my suspicions, dating back to 1977, that MG will have trouble with high Reynolds number problems unless upwind differencing is used on coarse grids. (MG makes the cell Reynolds number problem worse.) 3. Awareness of the wide variety of cycling schemes used. (I still think Cycle C is best.) 4. Difficulty of proper smoothing algorithm for complex prob

5. How did the conference contribute to your own professional activities?

Definitely helped, notably in the areas of three-dimensional grid generation, fluid dynamics, and electric field calculations.

INTERNATIONAL MULTIGRID CONFERENCE
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Page 2

6. What are your activities (practitioner, basic researcher, observer, etc.)? Did you have beneficial contact with others involved in different activities? (e.g., As a basic researcher, did you benefit from contact with real applications or the converse?)

Developer of algorithms and codes for solving 2D and 3D problems of fluid dynamics and electrostatics, especially in boundary-fitted non-orthogonal coordinates. Benefitted from contacts with both other "practitioners" and with the intelligible theoretical people.

7. What were the conference's good and bad points?

Good: location, scheduling, quality of the best speakers, lodging

*Bad: The written papers, abstracts, and conference schedule were poorly organized. Even a conference with an informal atmosphere needs a firm schedule, sent at least one week ahead of the conference to the attendees, **

8. In your opinion, was the conference a success or failure?

Unqualified success; one of the best conferences I have attended in years.

9. Would you like to see another MG Conference (who, when and where)?

Yes; same community + any other contributors who know what they are doing - one or one and ½ year intervals. I like Colorado, but the international flavor and cooperation would be enhanced by moving it around. How about a conference nominally every 1½ years, with late-winter/spring meetings in Colorado alternating with a late-summer/fall meeting in Europe (Germany, Holland, Britain) or Israel?

10. Additional comments:

** and a booklet of 1- or 2-page abstracts bound together in the order of presentation. With more effort and organizational money, one can provide the actual papers in a bound volume as the AIAA does, but this requires more lead time and cuts out the most recent results. However, the booklet of abstracts is not difficult and helps immensely in planning and taking notes, and should be absolutely required from the authors. As an option, in addition to the bound abstracts, the authors can also provide drafts of the full papers, as done at this conference, but these must be STAPLED! The situation of having a lap full of 20 papers, unstapled, not in any ***

Name Optional

Patrick J. Roache
Patrick J. Roache

***order (either alphabetical on authors names, or in order of presentation), and contending with changes in the order of papers from the schedule, all the while trying to take notes, detracted from the experience. I know other conferences have the same problems, but it is unnecessary.*

INTERNATIONAL MULTIGRID CONFERENCE

APRIL 5-8, 1983

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CONFERENCE QUESTIONNAIRE

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Rockwell Hall
Colorado State University
Fort Collins, Co 80523

1. What do you think about the environment and how it affected the conference?

The choice of a recreational resort contributed to a relaxed environment which I think is important to a good conference

2. From which lectures or types of lectures did you benefit most?

Those involving multigrid applications to parabolic & hyperbolic type prob.

3. Please comment on the planning of the schedule and program (timings, topics, etc.)

I thought the program was well-conceived & spanned the technology (theoretical & applied). Scheduling did not allow too much time for in depth discussion.

4. Please comment on the educational value of the conference. Did you learn anything from attending the conference? If so, what specific areas were important to you?

I learned that we have a long way to go to make multigrid work in complex reservoir simulation prob - Applications to reservoir simulation.

5. How did the conference contribute to your own professional activities?

Was enlightening with regard to giving an update as to where we stand. We are not actively pursuing multigrid methods, but rather are monitoring progress in this area.

INTERNATIONAL MULTIGRID CONFERENCE

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6. What are your activities (practitioner, basic researcher, observer, etc.)?
Did you have beneficial contact with others involved in different activities?
(e.g., As a basic researcher, did you benefit from contact with real applications or the converse?)

Researcher with applications orientation.

7. What were the conference's good and bad points?

(Bad) Too many speakers scheduled each day.
(Good) Good international representation; small group enhancing informality & communication; areas of technology well represented.

8. In your opinion, was the conference a success or failure?

Success.

9. Would you like to see another MG Conference (who, when and where)?

Yes - Possibly biannually;
Spring is a good time assuming the
season will not be bypassed as in Colo.
This yr. I like the notion of a Colorado
mtg resort of the AM-evening
sessions w/ after lunch free.
This format has been used
to good advantage at other
conferences I've attended

(Gordon Research Conf.,
Pembroke Conf., SPC
Forums, etc.).

Barthomas
Name Optional

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1. What do you think about the environment and how it affected the conference?

ENVIRONMENT WAS INFORMAL - LED TO A
RELAXED ATMOSPHERE - GOOD FOR EXCHANGING
IDEAS

2. From which lectures or types of lectures did you benefit most?

- LECTURES PERTAINING TO MY OWN AREA OF
RESEARCH (IE. RESERVOIR SIMULATION) WERE
HOST INTERESTING

3. Please comment on the planning of the schedule and program (timings, topics, etc.)

- WELL ORGANIZED

4. Please comment on the educational value of the conference. Did you learn anything from attending the conference? If so, what specific areas were important to you?

5. How did the conference contribute to your own professional activities?

INTERNATIONAL MULTIGRID CONFERENCE
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Page 2

6. What are your activities (practitioner, basic researcher, observer, etc.)?
Did you have beneficial contact with others involved in different activities?
(e.g., As a basic researcher, did you benefit from contact with real applications or the converse?)

PRACTITIONER - YES I BENEFITED FROM CONTACT
WITH BASIC RESEARCHERS

7. What were the conference's good and bad points?

- VERY WELL ORGANIZED CONFERENCE
- GREAT SKIING

8. In your opinion, was the conference a success or failure?

- SUCCESS

9. Would you like to see another MG Conference (who, when and where)?

YES I WOULD LIKE TO SEE ANOTHER MG
CONFERENCE

- IN 1-2 YEARS - WESTERN US IS A GOOD

10. Additional comments:

LOCATION FOR ME

Aeda Seki

Name Optional

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Please return by May 30

To: Gloria Jean Thomas, Conference Coordinator
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1. What do you think about the environment and how it affected the conference?

Copper Mountain was pleasant and made the conference more enjoyable. Conference room itself was much too crowded.

2. From which lectures or types of lectures did you benefit most?

The lectures on multidimensional flows.

3. Please comment on the planning of the schedule and program (timings, topics, etc.)

Okay

4. Please comment on the educational value of the conference. Did you learn anything from attending the conference? If so, what specific areas were important to you?

Yes, general understanding of multilevel.

5. How did the conference contribute to your own professional activities?

Plan to use multilevel in the near future,
made interesting contacts with other people.

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6. What are your activities (practitioner, basic researcher, observer, etc.)?
Did you have beneficial contact with others involved in different activities?
(e.g., As a basic researcher, did you benefit from contact with real applica-
tions or the converse?)

Yes, applied researcher with basic researcher.

7. What were the conference's good and bad points?

Bad - crowded room.

Good - most speakers.

8. In your opinion, was the conference a success or failure?

Success!

9. Would you like to see another MG Conference (who, when and where)?

Yes, ~1-1½ year, "nice" geographical location in US

10. Additional comments:

Greg Asthaler

Name Optional

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CONFERENCE QUESTIONNAIRE

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1. What do you think about the environment and how it affected the conference?
Beautiful environment with positive influence on conference.
2. From which lectures or types of lectures did you benefit most?
For me the most beneficial were those dealing with multigrid applied to specific problems.
3. Please comment on the planning of the schedule and program (timings, topics, etc.)
Conference was well-planned; scheduling was unusual (8-12, 5-6^{pm}) but worked out well.
Programming was well-done. Lecture room needed to be bigger.
4. Please comment on the educational value of the conference. Did you learn anything from attending the conference? If so, what specific areas were important to you?
Main value for me was in learning how other people with similar problems treat them via multigrid. The important areas to me were fluid dynamics applications and nonsymmetric problems.
5. How did the conference contribute to your own professional activities?
Keeps me abreast of the latest in multigrid.

INTERNATIONAL MULTIGRID CONFERENCE

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Page 2

6. What are your activities (practitioner, basic researcher, observer, etc.)?
Did you have beneficial contact with others involved in different activities?
(e.g., As a basic researcher, did you benefit from contact with real applications or the converse?)

Applications - practitioner.

I must say the theoreticians and those engaged in solving Laplace's equation didn't have much to offer me.

7. What were the conference's good and bad points?

Good : top people in field, beautiful setting

Bad : small lecture room, a couple of bad talks.

8. In your opinion, was the conference a success or failure?

Success.

9. Would you like to see another MG Conference (who, when and where)?

?

10. Additional comments:

Dennis Jespersen
Name [Optional]

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Rockwell Hall
Colorado State University
Fort Collins, Co 80523

1. What do you think about the environment and how it affected the conference?

Environment was really nice ; however, however, was a little
bit expensive ; the effect for the conf. was , that you always had
a bad conscience , either because you did ski or because you

2. From which lectures or types of lectures did you benefit most?

The lectures from the engineering practitioners on the 2nd day

3. Please comment on the planning of the schedule and program (timings, topics, etc.)

Schedule was in general good , but too harsely packed ; sessions
should start later (8 am) ; the rooms were too small

4. Please comment on the educational value of the conference. Did you learn anything from attending the conference? If so, what specific areas were important to you?

I learned a lot from the applications in fluid mechanics
and aerodynamics

5. How did the conference contribute to your own professional activities?

Gave new ideas and problems from the appl. of 4)

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6. What are your activities (practitioner, basic researcher, observer, etc.)?
Did you have beneficial contact with others involved in different activities?
(e.g., As a basic researcher, did you benefit from contact with real applications or the converse?)

basic researcher | contact with practitioners was most stimulating

7. What were the conference's good and bad points?

good environment

bad: too much time to adapt to the climate / no library

8. In your opinion, was the conference a success or failure?

success

9. Would you like to see another MG Conference (who, when and where)?

yes / '84 or '85 / next time perhaps Fort Collins

10. Additional comments:

The personnel organization of this meeting was extremely wonderful, a lot of thanks

R. Vojinovic

Name Optional

INTERNATIONAL MULTIGRID CONFERENCE

APRIL 5-8, 1983

COPPER MOUNTAIN, COLORADO

CONFERENCE QUESTIONNAIRE

Please return by May 30

To: Gloria Jean Thomas, Conference Coordinator
Department of Conferences and Institutes
Rockwell Hall
Colorado State University
Fort Collins, Co 80523

1. What do you think about the environment and how it affected the conference?

The environment was very enjoyable and relaxing to me.
I think it had a very positive effect upon the conference in that
our saturation points were increased.

2. From which lectures or types of lectures did you benefit most?

Lectures which dealt with general concepts and ideas, instead of
specific problems

3. Please comment on the planning of the schedule and program (timings, topics, etc.)

4. Please comment on the educational value of the conference. Did you learn anything from attending the conference? If so, what specific areas were important to you?

AMG
spectral multigrid - someone in our group is working on this and
it was interesting to me as well

5. How did the conference contribute to your own professional activities?

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6. What are your activities (practitioner, basic researcher, observer, etc.)?
Did you have beneficial contact with others involved in different activities?
(e.g., As a basic researcher, did you benefit from contact with real applications or the converse?)

As a basic researcher I benefited most from the talks on concepts
since no one really addressed the specific area that I am
working on

7. What were the conference's good and bad points?
Good points - well organized, relaxed atmosphere, afternoon break
Bad points - conference room too crowded

8. In your opinion, was the conference a success or failure?

9. Would you like to see another MG Conference (who, when and where)?

10. Additional comments:

Paul E. Cisielski

Name Optional

INTERNATIONAL MULTIGRID CONFERENCE

APRIL 5-8, 1983

COPPER MOUNTAIN, COLORADO

CONFERENCE QUESTIONNAIRE

Please return by May 30

To: Gloria Jean Thomas, Conference Coordinator
Department of Conferences and Institutes
Rockwell Hall
Colorado State University
Fort Collins, Co 80523

1. What do you think about the environment and how it affected the conference?

It was very nice; the casual atmosphere carried over nicely into the sessions.

2. From which lectures or types of lectures did you benefit most?

I enjoyed the mix of basic and applied papers.

3. Please comment on the planning of the schedule and program (timings, topics, etc.)

The schedule, with afternoons free, was very relaxing.

4. Please comment on the educational value of the conference. Did you learn anything from attending the conference? If so, what specific areas were important to you?

I carried away a better appreciation for the breadth of fields applied by mult-grid; also received specific comments relating to my own special area.

5. How did the conference contribute to your own professional activities?

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6. What are your activities (practitioner, basic researcher, observer, etc.)?
Did you have beneficial contact with others involved in different activities?
(e.g., As a basic researcher, did you benefit from contact with real applications or the converse?)

Basic researcher & teacher.

Yes, the cross-pollination is essential.

7. What were the conference's good and bad points?

Good: location, quality of speakers

Bad: ?

8. In your opinion, was the conference a success or failure?

A successful bring together of basic & applied
researchers.

9. Would you like to see another MG Conference (who, when and where)?

Yes, but probably no more often than every
two or three years.

10. Additional comments:

Name Optional

INTERNATIONAL MULTIGRID CONFERENCE

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COPPER MOUNTAIN, COLORADO

CONFERENCE QUESTIONNAIRE

Please return by May 30

To: Gloria Jean Thomas, Conference Coordinator
Department of Conferences and Institutes
Rockwell Hall
Colorado State University
Fort Collins, Co 80523

1. What do you think about the environment and how it affected the conference?

It helped create a relaxed atmosphere; not having continual lectures from 8:00 am to 5:00 pm. (as is common in other conferences) helped increase the amount I could learn (i.e., I didn't get burned out).

2. From which lectures or types of lectures did you benefit most?

The lectures given in Session II (wed. evening)

3. Please comment on the planning of the schedule and program (timings, topics, etc.)

4. Please comment on the educational value of the conference. Did you learn anything from attending the conference? If so, what specific areas were important to you?

I was very interested to learn about AMG (Algebraic Multigrid) theory and results.

5. How did the conference contribute to your own professional activities?

It helped me to get a better handle on what has been done with multigrid methods and what applications are currently being investigated.

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6. What are your activities (practitioner, basic researcher, observer, etc.)? Did you have beneficial contact with others involved in different activities? (e.g., As a basic researcher, did you benefit from contact with real applications or the converse?)

Graduate student involved in basic research on solving spectral equations using multigrid techniques.

7. What were the conference's good and bad points?

8. In your opinion, was the conference a success or failure?

success

9. Would you like to see another MG Conference (who, when and where)?

10. Additional comments:

- 1) The lecture room was extremely cramped
- 2) Somehow I managed to get a room directly over a bar in which a live band played each night. Consequently I did not get much of a chance to sleep.

Scott R. Fulton

Name Optional

INTERNATIONAL MULTIGRID CONFERENCE

APRIL 5-8, 1983

COPPER MOUNTAIN, COLORADO

CONFERENCE QUESTIONNAIRE

Please return by May 30

To: Gloria Jean Thomas, Conference Coordinator
Department of Conferences and Institutes
Rockwell Hall
Colorado State University
Fort Collins, Co 80523

1. What do you think about the environment and how it affected the conference?

Excellent

2. From which lectures or types of lectures did you benefit most?

Having the Proceedings Available at the Conference

3. Please comment on the planning of the schedule and program (timings, topics, etc.)

Excellent. But Friday morning checkout
Requirement badly affected attendance then.

4. Please comment on the educational value of the conference. Did you learn anything from attending the conference? If so, what specific areas were important to you?

Multigrid stencils
Transonic applications

5. How did the conference contribute to your own professional activities?

Helped in my teaching of seminar

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6. What are your activities (practitioner, basic researcher, observer, etc.)?
Did you have beneficial contact with others involved in different activities?
(e.g., As a basic researcher, did you benefit from contact with real applications or the converse?)

Question too diffuse

7. What were the conference's good and bad points?

on a chairlift, a
colleague must answer
your questions

food service, especially
breakfast

8. In your opinion, was the conference a success or failure?

Success

9. Would you like to see another MG Conference (who, when and where)?

Sure, same place, but aren't there
already many?

10. Additional comments:

You did a good job Steve.

K. Gustafson

Name Optional

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CONFERENCE QUESTIONNAIRE

Please return by May 30

To: Gloria Jean Thomas, Conference Coordinator
Department of Conferences and Institutes
Rockwell Hall
Colorado State University
Fort Collins, Co 80523

1. What do you think about the environment and how it affected the conference?

Excellent environment, stimulated attendance, contributed
to personal exchanges

2. From which lectures or types of lectures did you benefit most?

Detailed scientific reports & surveys

3. Please comment on the planning of the schedule and program (timings, topics, etc.)

Generally well done

4. Please comment on the educational value of the conference. Did you learn anything from attending the conference? If so, what specific areas were important to you?

Yes. As an outsider to this specialty I gained
insight into the nature of problems, kinds of activities &
results, and attitudes of principal workers

5. How did the conference contribute to your own professional activities?

gained insight into an active area of research

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6. What are your activities (practitioner, basic researcher, observer, etc.)?
Did you have beneficial contact with others involved in different activities?
(e.g., As a basic researcher, did you benefit from contact with real applications or the converse?)

7. What were the conference's good and bad points?

Few bad points, many good. good selection of speakers
& good location

8. In your opinion, was the conference a success or failure?

~~~~~

9. Would you like to see another MG Conference (who, when and where)?

yes in 1-2 yrs

10. Additional comments:

In many ways this was a model <sup>for</sup> of attractive  
scientifically useful meetings

Name Optional

David W. Fox

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INTERNATIONAL MULTIGRID CONFERENCE

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CONFERENCE QUESTIONNAIRE

Please return by May 30

To: Gloria Jean Thomas, Conference Coordinator  
Department of Conferences and Institutes  
Rockwell Hall  
Colorado State University  
Fort Collins, Co 80523

1. What do you think about the environment and how it affected the conference?

The meeting room was quite crowded, but otherwise suitable. It was unfortunate that we were left in the dark as to food facilities on the first evening and morning.

2. From which lectures or types of lectures did you benefit most?

I benefit most from the lectures which deal mostly with computer techniques, rather than with the underlying math theories.

3. Please comment on the planning of the schedule and program (timings, topics, etc.)

Fine.

4. Please comment on the educational value of the conference. Did you learn anything from attending the conference? If so, what specific areas were important to you?

It was interesting to see that more people in the session were interested in accuracy than in time and cost of computations.

5. How did the conference contribute to your own professional activities?

I am better able to deal with my customers when I know what their interests are.

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Page 2

6. What are your activities (practitioner, basic researcher, observer, etc.)?  
Did you have beneficial contact with others involved in different activities?  
(e.g., As a basic researcher, did you benefit from contact with real applica-  
tions or the converse?)

I am a pre-sales analyst for a computer vendor, CRAY RESEARCH.  
I had beneficial contact with several people.

7. What were the conference's good and bad points?

GOOD: lectures, people, skiing.

BAD: food services, condos(instead of singles), incorrect spelling  
of names on lists.

8. In your opinion, was the conference a success or failure?

Success.

9. Would you like to see another MG Conference (who, when and where)?

Yes.

10. Additional comments:

Please keep me on your mailing list for all conferences that  
might possibly interest a computer analyst.

Thank you.

GEORGE W. PACKAGE

Name Optional

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CONFERENCE QUESTIONNAIRE

Please return by May 30

To: Gloria Jean Thomas, Conference Coordinator  
Department of Conferences and Institutes  
Rockwell Hall  
Colorado State University  
Fort Collins, Co 80523

1. What do you think about the environment and how it affected the conference?

*I did not like the location. The conference facilities were just OK, but the room rates were flat too high and the cold was not very pleasant either. Obviously, I am a nonskier.*

2. From which lectures or types of lectures did you benefit most?

*The first session was by far the best. The most beneficial lectures were those dealing with large 3-dimensional problems having fairly simple PDEs.*

3. Please comment on the planning of the schedule and program (timings, topics, etc.)

*I thought the schedule and program were well done.*

4. Please comment on the educational value of the conference. Did you learn anything from attending the conference? If so, what specific areas were important to you?

*I learned a great deal in the areas mentioned above in no. 2.*

5. How did the conference contribute to your own professional activities?

*The conference was very valuable in that it increased my confidence in my knowledge of multi-grid and also acquainted me with the current state-of-the-art in multi-grid. I also met some of the major diectors of related fields like Dr. J. A. McCormick.*

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6. What are your activities (practitioner, basic researcher, observer, etc.)? Did you have beneficial contact with others involved in different activities? (e.g., As a basic researcher, did you benefit from contact with real applications or the converse?)

I am a basic researcher in numerical modeling of atmospheric processes near the surface of the earth. As such, I am a user of multi-grid techniques. I found it very useful to talk to others involved both use and development of multi-grid techniques.

7. What were the conference's good and bad points?

My only complaint is on the location. As a Federal employee, my per diem did not even cover the cost. I had to make up the difference with my own funds.

8. In your opinion, was the conference a success or failure?

It was a big success. As was alluded to in no. 6 above, it is always beneficial to bring together workers having different backgrounds because it allows for valuable interaction.

9. Would you like to see another MG Conference (who, when and where)?

Yes, very much. I think that one year from now would be a good time. As for the location, any place other than a resort area would be fine.

10. Additional comments:

William Thompson

Name Optional

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COPPER MOUNTAIN, COLORADO

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CONFERENCE QUESTIONNAIRE

Please return by May 30

To: Gloria Jean Thomas, Conference Coordinator  
Department of Conferences and Institutes  
Rockwell Hall  
Colorado State University  
Fort Collins, Co 80523

1. What do you think about the environment and how it affected the conference?

Beneficial. "Small town" atmosphere facilitated talking to people.

2. From which lectures or types of lectures did you benefit most?

Those comparing multigrid with other methods on realistic problems.  
I like to see both theoretical work and computational results.

3. Please comment on the planning of the schedule and program (timings, topics, etc.)

4. Please comment on the educational value of the conference. Did you learn anything from attending the conference? If so, what specific areas were important to you?

Very educational. Randy Bank's talk & Achim Brandt's were informative.  
The talks of Bebie & Forsyth and Day, McCormick & Sweet were particularly relevant to my work. The work on algebraic multigrid (Brandt, McCormick, Ruge, and Stulan, Trottenberg) was also good. Toni Janissen's talk was worthwhile.

5. How did the conference contribute to your own professional activities?

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CONFERENCE QUESTIONNAIRE  
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6. What are your activities (practitioner, basic researcher, observer, etc.)?  
Did you have beneficial contact with others involved in different activities?  
(e.g., As a basic researcher, did you benefit from contact with real applica-  
tions or the converse?)

basic researcher/practitioner. My work requires both activities.

7. What were the conference's good and bad points?

Good points: Planned dinner & banquet.

Bad points: No donuts between sessions. Lack of restaurants for early  
breakfast.

8. In your opinion, was the conference a success or failure?

success

9. Would you like to see another MG Conference (who, when and where)?

Yes. Should have Alchi Brandt & Randy Bank.

10. Additional comments:

• Very good conference

David P. Young

Name Optional

INTERNATIONAL MULTIGRID CONFERENCE

APRIL 5-8, 1983

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CONFERENCE QUESTIONNAIRE

Please return by May 30

To: Gloria Jean Thomas, Conference Coordinator  
Department of Conferences and Institutes  
Rockwell Hall  
Colorado State University  
Fort Collins, Co 80523

1. What do you think about the environment and how it affected the conference?

The environment were very suitable for the conference

2. From which lectures or types of lectures did you benefit most?

Lectures that covered some of the theoretical aspects of Multigrid.

3. Please comment on the planning of the schedule and program (timings, topics, etc.)

Planning and coordination was great.

4. Please comment on the educational value of the conference. Did you learn anything from attending the conference? If so, what specific areas were important to you?

The conference was very informative to myself.

The AMG was the area that I ~~had~~ enjoyed the most.

5. How did the conference contribute to your own professional activities?

The AMG coverage convinced me that we will have a true black box multigrids in the near future.

INTERNATIONAL MULTIGRID CONFERENCE  
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Page 2

6. What are your activities (practitioner, basic researcher, observer, etc.)?  
Did you have beneficial contact with others involved in different activities?  
(e.g., As a basic researcher, did you benefit from contact with real applications or the converse?)

basic researcher and lots of activities in  
real applications. I believe I learn more  
from CSU basic researchers.

7. What were the conference's good and bad points?

bad point: being a little too long.  
good points: topics covered

8. In your opinion, was the conference a success or failure?

a success

9. Would you like to see another MG Conference (who, when and where)?

May be in another year. The same  
location is fine

10. Additional comments:

Great job over all

M. R. Mandel

Name Optional

INTERNATIONAL MULTIGRID CONFERENCE  
APRIL 5-8, 1983  
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CONFERENCE QUESTIONNAIRE

Please return by May 30

To: Gloria Jean Thomas, Conference Coordinator  
Department of Conferences and Institutes  
Rockwell Hall  
Colorado State University  
Fort Collins, Co 80523

1. What do you think about the environment and how it affected the conference?

SKING WAS FUN, BUT IT DEFINITELY ~~DETAILED~~ CUTS  
DOWN ON THE ACCOMPLISHMENTS OF THE CONFERENCE.  
FOR ONE THING IT OCCUPIES A SIGNIFICANT  
AMOUNT OF TIME.

2. From which lectures or types of lectures did you benefit most?

NOT BEING A MATHEMATICIAN, I GOT MORE OUT OF  
THE PAPERS WITH AN ENGINEERING APPROACH.

3. Please comment on the planning of the schedule and program (timings, topics, etc.)

SCHEDULE WAS FINE, EXCEPT FOR THE PROBLEM  
WITH GETTING BREAKFAST (SINCE NOTHING WAS OPEN)

4. Please comment on the educational value of the conference. Did you learn anything from attending the conference? If so, what specific areas were important to you?

THE CONFERENCE HAS GIVEN ME IDEAS ON THINGS  
TO TRY (IF I HAVE TIME). I HAVE GOTTEN A  
BETTER FEEL FOR WHAT IS POSSIBLE USING  
MULTIGRID.

5. How did the conference contribute to your own professional activities?

SEE (4.)

INTERNATIONAL MULTIGRID CONFERENCE

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CONFERENCE QUESTIONNAIRE

Page 2

6. What are your activities (practitioner, basic researcher, observer, etc.)?  
Did you have beneficial contact with others involved in different activities?  
(e.g., As a basic researcher, did you benefit from contact with real applica-  
tions or the converse?)

BASIC RESEARCH IN COMPUTATIONAL FLUID MECHANICS.  
USER OF MULTIGRID TO SPEED COMPUTATIONS.  
I HAD BENEFICIAL CONTACT WITH OTHERS.

7. What were the conference's good and bad points?

THE CONFERENCE'S BAD POINT (WITH RESPECT TO ME)  
WAS THE VERY MATHEMATICAL (NOTATION, ETC) NATURE  
OF THE ~~PAPERS~~ PRESENTATIONS. MANY POOR  
PRESENTATIONS (TYPICAL).

8. In your opinion, was the conference a success or failure?

SUCCESS

9. Would you like to see another MG Conference (who, when and where)?

ABOUT EVERY 2 YEARS. NOT MUCH USE TO ME  
UNLESS IN THE U.S.

10. Additional comments:

Theodore A. Rybicki  
Name Optional

INTERNATIONAL MULTIGRID CONFERENCE

APRIL 5-8, 1983

COPPER MOUNTAIN, COLORADO

CONFERENCE QUESTIONNAIRE

RECORDED  
MAY 22 1983  
G. A. INSTITUTE

Please return by May 30

To: Gloria Jean Thomas, Conference Coordinator  
Department of Conferences and Institutes  
Rockwell Hall  
Colorado State University  
Fort Collins, Co 80523

1. What do you think about the environment and how it affected the conference?

Good ENVIRONMENT - CONducive TO INFORMAL DISCUSSION.

2. From which lectures or types of lectures did you benefit most?

1. ALGEBRAIC MULTIGRID
2. APPLICATIONS OF MULTIGRID

3. Please comment on the planning of the schedule and program (timings, topics, etc.)

Good

4. Please comment on the educational value of the conference. Did you learn anything from attending the conference? If so, what specific areas were important to you?

YES

SEE 2. ABOVE

5. How did the conference contribute to your own professional activities?

IMPROVED COMMUNICATIONS WITH MATHEMATICAL  
MULTIGRID COMMUNITY.

INTERNATIONAL MULTIGRID CONFERENCE  
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Page 2

6. What are your activities (practitioner, basic researcher, observer, etc.)?  
Did you have beneficial contact with others involved in different activities?  
(e.g., As a basic researcher, did you benefit from contact with real applications or the converse?)

ENGINEERING RESEARCHER

CONTACT WITH MG MATHEMATICIANS WAS BENEFICIAL

7. What were the conference's good and bad points?

BAD - THE CONFERENCE ROOM WAS TOO SMALL

GOOD - EVERYTHING ELSE

8. In your opinion, was the conference a success or failure?

SUCCESS

9. Would you like to see another MG Conference (who, when and where)?

YES, EVERY TWO YEARS OR SO, ALTERNATING  
BETWEEN NORTH AMERICA AND EUROPE

10. Additional comments:

THANKS FOR THE GOOD WORK MS. THOMAS!

Gary M. Johnson

Name Optional

INTERNATIONAL MULTIGRID CONFERENCE

APRIL 5-8, 1983

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JUN 24 1983

CONFERENCE  
& INSTITUTES

CONFERENCE QUESTIONNAIRE

Please return by May 30

To: Gloria Jean Thomas, Conference Coordinator  
Department of Conferences and Institutes  
Rockwell Hall  
Colorado State University  
Fort Collins, Co 80523

1. What do you think about the environment and how it affected the conference?

Environment was most attractive, however, I don't ski!  
Lack of dining facilities is a problem; Copper Mountain's handling  
of food arrangements was courteous & enthusiastic, but disorganized  
and sometimes a bit crude. The accommodations were pleasant, but confusing.

2. From which lectures or types of lectures did you benefit most? Lecture meeting

These are so specialized that they are all of facilities are  
interest. My main interests were in fluid dynamics,  
but general ideas are of great value in this subject.

3. Please comment on the planning of the schedule and program (timings, topics, etc.)

Timing was fine, program materials of the best sort to  
appear so far at a general multigrid conference. Papers  
were generally of very high quality.

4. Please comment on the educational value of the conference. Did you learn anything  
from attending the conference? If so, what specific areas were important  
to you?

No question a great deal was learned - can't tell  
a priori which ideas will be of most use in future.

5. How did the conference contribute to your own professional activities?

Main benefit, aside from technical exchanges, is  
opportunity to meet other practitioners. Such things  
are essential to professional activity.

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Page 2

6. What are your activities (practitioner, basic researcher, observer, etc.)?  
Did you have beneficial contact with others involved in different activities?  
(e.g., As a basic researcher, did you benefit from contact with real applications or the converse?)

I'm a basic researcher by nature, a practitioner by necessity.  
No question that the spectrum of interests present was one  
of the major strengths of the conference.

7. What were the conference's good and bad points?

(Covered rather thoroughly above)

8. In your opinion, was the conference a success or failure?

This is clearly a success, but see 9.

9. Would you like to see another MG Conference (who, when and where)?

Yes; however, it should be noted that it takes a while  
in this field before there is good deal of quality material  
to present. Frequency may be the enemy of quality.

10. Additional comments:

Douglas P. McCarty  
Name Optional

INTERNATIONAL MULTIGRID CONFERENCE

APRIL 5-8, 1983

COPPER MOUNTAIN, COLORADO

CONFERENCE QUESTIONNAIRE

Please return by May 30

To: Gloria Jean Thomas, Conference Coordinator  
Department of Conferences and Institutes  
Rockwell Hall  
Colorado State University  
Fort Collins, Co 80523

1. What do you think about the environment and how it affected the conference?

A good relaxing environment

2. From which lectures or types of lectures did you benefit most?

Most were beneficial, both general and topical

3. Please comment on the planning of the schedule and program (timings, topics, etc.)

It was very usefull to have the afternoons free

4. Please comment on the educational value of the conference. Did you learn anything from attending the conference? If so, what specific areas were important to you?

Multigrid in fluid flow problems

5. How did the conference contribute to your own professional activities?

New contacts

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6. What are your activities (practitioner, basic researcher, observer, etc.)?  
Did you have beneficial contact with others involved in different activities?  
(e.g., As a basic researcher, did you benefit from contact with real applications or the converse?)

Basic researcher. The contact with real applications was usefull.

7. What were the conference's good and bad points?

Good points: Broad cross section of interests, ample opportunity for interaction

Bad points: Banquet fare was adequate but needing

8. In your opinion, was the conference a success or failure?

9. Would you like to see another MG Conference (who, when and where)?

Yes, a year or two, Vail

10. Additional comments:

Steve Schaffer

Name Optional

INTERNATIONAL MULTIGRID CONFERENCE

APRIL 5-8, 1983

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CONFERENCE QUESTIONNAIRE

Please return by May 30

To: Gloria Jean Thomas, Conference Coordinator  
Department of Conferences and Institutes  
Rockwell Hall  
Colorado State University  
Fort Collins, Co 80523

1. What do you think about the environment and how it affected the conference?

It was very pleasant, and had a good effect.  
Having folks in the morning and evening - the two afternoons,  
was especially a good idea.

2. From which lectures or types of lectures did you benefit most?

Those on new research topics such as AMG,  
and accessible theory talks like Anne Greenbaum -

3. Please comment on the planning of the schedule and program (timings, topics, etc.)

very well planned

4. Please comment on the educational value of the conference. Did you learn anything from attending the conference? If so, what specific areas were important to you?

Learning the problems and successes of other  
multigrid was important to me as well as informal  
conversations with attendees

5. How did the conference contribute to your own professional activities?

It stimulated several areas of research I am  
pursuing, particularly on Helmholtz equations.

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6. What are your activities (practitioner, basic researcher, observer, etc.)? Did you have beneficial contact with others involved in different activities? (e.g., As a basic researcher, did you benefit from contact with real applications or the converse?)

basic researcher. I benefited from learning about some of the problems faced by people at Exxon in reservoir

7. What were the conference's good and bad points?

The gap between the really theoretical work and really applied was so great people had trouble bridging it. But the mix of topics was quite good and I had a feel for the current state of the art.

8. In your opinion, was the conference a success or failure?

success

9. Would you like to see another MG Conference (who, when and where)?

yes, in about 2 years. Almost an exact repeat would be fine or it could be given by Mac Hyman, Joel Denby at Los Alamos

10. Additional comments:

John Van Rosendale  
Name Optional

25.5.83

INTERNATIONAL MULTIGRID CONFERENCE

APRIL 5-8, 1983

COPPER MOUNTAIN, COLORADO

DR. H. HOLSTEIN  
DEPT. COMPUTER SCIENCE  
UNIV. COLLEGE OF WALES  
ABERYSTWYTH  
GT. BRITAIN SY23 3BZ

CONFERENCE QUESTIONNAIRE

Please return by May 30 ← sorry!

To: Gloria Jean Thomas, Conference Coordinator  
Department of Conferences and Institutes  
Rockwell Hall  
Colorado State University  
Fort Collins, Co 80523

1. What do you think about the environment and how it affected the conference?

Interesting & convenient

2. From which lectures or types of lectures did you benefit most?

Theoretical aspects of MG.

3. Please comment on the planning of the schedule and program (timings, topics, etc.)

4 sessions in mornings rather heavy. Spread of topics good.  
Little time for discussion at end of papers. Could some formal  
discussion ~~sessions~~ have been included in the planning?

4. Please comment on the educational value of the conference. Did you learn anything from attending the conference? If so, what specific areas were important to you?

1. MG content
2. Good ~~and~~ selection of speakers, for making contact
3. model for Bristol MG meeting.

5. How did the conference contribute to your own professional activities?

Hope to apply MG methods to Non-Newtonian problems.

Gloria Jean, Thanks for a pleasant conference and  
for help received afterwards. Would you pass on the enclosed?

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RECEIVED  
MAY 9 1983  
CONFERENCES  
& INSTITUTES

6. What are your activities (practitioner, basic researcher, observer, etc.)? Did you have beneficial contact with others involved in different activities? (e.g., As a basic researcher, did you benefit from contact with real applications or the converse?)
7. What were the conference's good and bad points?
8. In your opinion, was the conference a success or failure?
9. Would you like to see another MG Conference (who, when and where)?
10. Additional comments:

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Name Optional

INTERNATIONAL MULTIGRID CONFERENCE

RECEIVED

APRIL 5-8, 1983

MAY 31 1983

COPPER MOUNTAIN, COLORADO

CONFERENCES  
& INSTITUTES

CONFERENCE QUESTIONNAIRE

Please return by May 30

To: Gloria Jean Thomas, Conference Coordinator  
Department of Conferences and Institutes  
Rockwell Hall  
Colorado State University  
Fort Collins, Co 80523

1. What do you think about the environment and how it affected the conference?

Physical environment was very nice to say the least

2. From which lectures or types of lectures did you benefit most?

Most interested in those lectures dealing with the practical implementation of MG

3. Please comment on the planning of the schedule and program (timings, topics, etc.)

Well thought-out and planned. Difficult to see how it could have been much better.

4. Please comment on the educational value of the conference. Did you learn anything from attending the conference? If so, what specific areas were important to you?

Yes A great deal about algebraic multigrid

5. How did the conference contribute to your own professional activities?

Contact with individuals performing similar work is always helpful.

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6. What are your activities (practitioner, basic researcher, observer, etc.)?  
Did you have beneficial contact with others involved in different activities?  
(e.g., As a basic researcher, did you benefit from contact with real applications or the converse?)

Basic research & development of numerical methods  
for CFD. Yes.

7. What were the conference's good and bad points?

Good: location, organization, participants

Bad: Meeting room was too small

8. In your opinion, was the conference a success or failure?

Success.

9. Would you like to see another MG Conference (who, when and where)?

Yes. Who: Whoever is crazy enough to put up with such a  
<sup>messy,</sup> ~~mess~~

When: Spring '84

Where: New Orleans, New England ski area, Canada

10. Additional comments:

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Name Optional

INTERNATIONAL MULTIGRID CONFERENCE

APRIL 5-8, 1983

MAY 06 1983

COPPER MOUNTAIN, COLORADO

COLLEGE  
& INSTITUTE

CONFERENCE QUESTIONNAIRE

Please return by May 30

To: Gloria Jean Thomas, Conference Coordinator  
Department of Conferences and Institutes  
Rockwell Hall  
Colorado State University  
Fort Collins, Co 80523

1. What do you think about the environment and how it affected the conference?

Very pleasant.

2. From which lectures or types of lectures did you benefit most?

Got good general background from most of them.

3. Please comment on the planning of the schedule and program (timings, topics, etc.)

good

4. Please comment on the educational value of the conference. Did you learn anything from attending the conference? If so, what specific areas were important to you?

yes I was impressed by the wide applicability  
of the multi grid approach.

5. How did the conference contribute to your own professional activities?

I intend to use the multigrid approach at the  
first opportunity

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6. What are your activities (practitioner, basic researcher, observer, etc.)? Did you have beneficial contact with others involved in different activities? (e.g., As a basic researcher, did you benefit from contact with real applications or the converse?)

As a computer scientist and consultant I had the chance to talk with people who may be dealing with me professionally in the future, as well as some <sup>I am dealing with now.</sup>

7. What were the conference's good and bad points?

The good points were: (a) no simultaneous sessions (b) well organized, punctual presentations (c) Proceedings immediately available — bad points: wednesday night's dinner

8. In your opinion, was the conference a success or failure?

Definitely a success.

9. Would you like to see another MG Conference (who, when and where)?

Yes. Same time and place next year.

10. Additional comments:

W. Roy Riesel  
Name Optional

INTERNATIONAL MULTIGRID CONFERENCE

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COPPER MOUNTAIN, COLORADO

CONFERENCE QUESTIONNAIRE

Please return by May 30

To: Gloria Jean Thomas, Conference Coordinator  
Department of Conferences and Institutes  
Rockwell Hall  
Colorado State University  
Fort Collins, Co 80523

1. What do you think about the environment and how it affected the conference?

The atmosphere was relaxed, which was very beneficial.

2. From which lectures or types of lectures did you benefit most?

AMG and Spectral multigrid.

3. Please comment on the planning of the schedule and program (timings, topics, etc.)

4. Please comment on the educational value of the conference. Did you learn anything from attending the conference? If so, what specific areas were important to you?

AMG, Spectral Multigrid

5. How did the conference contribute to your own professional activities?

We are attempting to apply multigrid methods to atmospheric science problems.

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6. What are your activities (practitioner, basic researcher, observer, etc.)?  
Did you have beneficial contact with others involved in different activities?  
(e.g., As a basic researcher, did you benefit from contact with real applications or the converse?)

practitioner/basic researcher in geophysical fluid dynamics.

7. What were the conference's good and bad points?

Fairly good mix of <sup>research</sup> activities by participants. We need more geophysical fluid dynamicists interested.

8. In your opinion, was the conference a success or failure?

Success!

9. Would you like to see another MG Conference (who, when and where)?

I would very much like to see the multigrid activities at CSU flourish. Perhaps another conference in about 2 years would be helpful for this.

10. Additional comments:

Wayne Schubert

Name Optional

INTERNATIONAL MULTIGRID CONFERENCE

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COPPER MOUNTAIN, COLORADO

CONFERENCE QUESTIONNAIRE

Please return by May 30

To: Gloria Jean Thomas, Conference Coordinator  
Department of Conferences and Institutes  
Rockwell Hall  
Colorado State University  
Fort Collins, Co 80523

1. What do you think about the environment and how it affected the conference?

The setting and facilities were quite pleasant and contributed to the success of the conference.

2. From which lectures or types of lectures did you benefit most?

I particularly enjoyed the grouping of AMG lectures.

3. Please comment on the planning of the schedule and program (timings, topics, etc.)

Well-planned

4. Please comment on the educational value of the conference. Did you learn anything from attending the conference? If so, what specific areas were important to you?

I think I learned the most about AMG. Many of the other talks were too short to really get anything more than a superficial understanding - but this from a non-expert in MG.

5. How did the conference contribute to your own professional activities?

I made contacts with people working in this area which will be valuable for future MG work.

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6. What are your activities (practitioner, basic researcher, observer, etc.)?  
Did you have beneficial contact with others involved in different activities?  
(e.g., As a basic researcher, did you benefit from contact with real applications or the converse?)

Novice MG'er. Yes, I benefitted.

7. What were the conference's good and bad points?

good ones have already been mentioned above. Bad one  
was that we were too crowded with those big tables.

8. In your opinion, was the conference a success or failure?

Success, highly successful

9. Would you like to see another MG Conference (who, when and where)?

Yes, anywhere (who?)

10. Additional comments:

R Sweet

Name Optional

END

DATE  
FILMED

7-84

DTIC